

Mission Manager, GS- 0801-14

AST- Technical Management, NCC: 770-30

Position Number: GS05C07

Introductory Statement: The incumbent serves as Mission Manager within the Flight Programs and Projects Directorate. The incumbent is responsible for effectively organizing, planning, directing, and coordinating the technical management operations of a mission. The incumbent is responsible for the leadership and development of all aspects of the program and serves as the primary point of contact between NASA, other U.S. Government agencies, and foreign participants. Incumbent has mission responsibility for program planning, evaluation, system engineering, equipment design, integration and test, scheduling, budget, user coordination, and interaction and overall mission objectives. The work includes advising on, coordinating, monitoring, or performing work in several phases of technical and resources planning and programming. The work may include designing, implementing, and maintaining technical management functions typically involving two or more areas of management functions such as resources analysis, technical management systems, technical engineering operations management, or configurations management; Duties may also include monitoring contractors engaged in this work.

The following major duty areas comprise tasks and duties directly related to AST-Technical Management work, NCC 770-30, as described in the AST Definition for that specialty level. The specialty knowledge described in the definition is needed to perform the duties of this job in addition to the knowledge described below.

Mission Operations Integration Work 40%

Manages the acquisition of systems, equipment, software and services for the Mission. Serves as an engineering expert authority and consultant in the efforts of integrating ground and flight operations for assigned mission and payloads. Conceives, plans directs and participates in engineering analyses and studies and technology planning and advanced system concept development. Conceives, initiates, and monitors policies and projects dealing with the most challenging problems in the area of integrated mission operations. Participates in committees and working groups to set national standards and policies. Conceives, plans and conducts work of outstanding scope, difficulty, and complexity in unexplored or unpromising areas of investigation. Provides the vision that forms the basis for Project strategic planning and development of functional requirements for operations facilities and tools to ensure the capabilities and resources meet the goals and objectives of the project. Manages the assessment of operational interfaces inherent in advanced projects and in the proposals of the project elements and provides recommendations to Center management.

Manages the overall definition and performance of services for NASA's space operations including ensuring that mission control centers, space networks, and ground networks are capable of meeting mission requirements. Manages the policies for conceptual definition, design, development, implementation, integration, and test and verification of the agency's space operations infrastructure, control center, communications networks, and planning facilities to enhance technology compliance with industry strategies for future outsourcing and commercialization of space operations services.

Technical Contractor Oversight of Aerospace Engineering Activities 25%

Initiates contact and provides expert technical advice and direction to contractor professionals in areas such as flight systems, fluid and flight mechanics, the fabrication or composition of materials and structures, or propulsion and power. Serves as a senior technical contact and/or Contracting Officer's Technical Representative. Keeps the Contracting Officer informed on progress, proposed contract modifications, validity of claims, analysis of proposals, and assessment of contract time extensions.

Work complexities require the development of alternate solutions to reduce time and costs, versatility and innovation, and short cuts or compromises that are considered risky. Provides technical management and leadership planning, organizing, directing and coordinating research and development and implementation of systems related to the Mission. Performs additional data systems and analysis work.

Flight Systems Operations Work 20%

Manages significant elements or phases of projects related to major flight operations functions. Directs overall development of mission design procedures, training, data acquisition requirements, and technical mission documentation for nominal and contingency spacecraft operations. Makes substantial and continuing contribution to long-range planning and formulation, modification and determination of overall objectives. Serves as a technical source of information for decisions and guidance concerning changes in project objectives relating to the total management effort.

Responsible for developing the integration and operations procedures concept for assigned systems, performing the detailed preparation activities to support this concept, and executing this concept during the mission. Overcomes difficult and complex technical, project, and organizational problems using innovative and original approaches. Plans, guides, coordinates, and manages the work of subordinate, secondary, and matrixed resources engaged in accomplishing the missions and functions of the organization. Performs periodic review and analysis to assess achievement of major goals.

Provides engineering analysis for special projects, future projects, and in advance planning of new systems and capabilities of all applicable agency projects and areas of concern and responsibility. Provides flight systems operations expertise for high-level operations decisions involving the discipline's systems.

Performance of Technical Managerial Functions for Engineering Projects 10%

Serves as a senior technical contact for engineering projects/requirements. Keeps senior management informed on progress; proposed project, grant or contract modifications; resource analyses; analysis of proposals; and assessment of contract modifications. Consults, and advises management on operational and planning issues. Establishes budget and resource requirements. Analyzes, coordinates, and integrates a number of complex program elements into programs that represent a Center-wide/program position. Serves as expert technical management consultant and advisor to subordinate activities in areas such as technology development and commercialization activities at a NASA center. Initiates investigations and risk-management studies to find solutions to critical problems in areas such as resources analysis, technical management systems, technical engineering operations management, or

configurations management.

Serves as a senior staff member of the Project, assisting the Project Manager in presenting operational problems; the solutions; status; and risk management status to Center and HQ management.

Develops, analyzes, and evaluates long-range plans for the project. Develops and implements policies. Oversees the development of trend analysis, process analyses, control policies, and requirements for a Center, or program. Consults on the development of technical resources and business management systems. Initiates and facilitates technology transfer activities. Work complexities require versatility and innovation, the implementation of short cuts or compromises that are considered risky, or the development of alternate solutions to reduce time and costs. Initiates and facilitates technology transfer.

Space Flight Operations Work 5%

Serves as an expert in the development of space flight operations concepts, spacecraft test and checkout, and vehicle integration. Manages and coordinates all activities required to support prelaunch and launch operations for an assigned mission. Coordinates operational and technical matters relative to assigned flow and participates in long-range planning on matters related to the assigned flow. Ensures that the proper ground processes are implemented from assembly through verification and launch, and ensures compatibility and coordination between the launch site support/processing organizations and the mission/flight hardware development organization.

Maintains close contact with headquarters, other centers, trade representatives, and international partners for elements in advanced technology and engineering application areas. Participates as a presenter in national and international seminars and symposia relating to fields of expertise in engineering technology or research.

OTHER SIGNIFICANT FACTS:

Position requires overnight travel 1-5 nights per month.

Assures technical proficiency and compliance with the technical provisions of the contract by reviewing and verifying the performance of work by the contractor.

Factor 1- 8 Knowledge Required by the Position

The position requires a mastery of the concepts and principles of general engineering to resolve novel or obscure problems; extend and modify techniques; develop new approaches that guide other engineers who solve a variety of technical problems; and/or apply new, innovative, or experimental general engineering theories, developments, or practices to problems or studies not susceptible to treatment by acceptable methods.

Professional knowledge of, and ability to apply, engineering disciplines of spacecraft and instrument technology in the conduct of missions.

Knowledge of, and ability to apply, engineering concepts, practices, principles, and discipline of data systems technology in development and operation of ground systems in support of space flight.

Ability to communicate effectively orally and in writing.

Ability to plan, organize, and manage the work to accomplish a variety of concurrent activities performed in a variety of organizations (in-house, contractors, NASA headquarters, investigators).

Knowledge of management of a project including but not limited to project planning and evaluation, systems tests, configuration management, systems integration, risk management, reliability and quality assurance, image data processing, budgetary and financial planning, technical direction and monitoring of contracts, and project reporting.

Knowledge of government and agency contractual and funding rules, regulations, relationships, and administrative processes involved in developing and procuring hardware, software, and an enormous and complicated ground systems and operations facility.

Factor 2- 5 Supervisory Controls

The supervisor provides guidance solely in the form of general legislative, mission, or policy directions and resource constraints. The engineer typically initiates new projects or activities independently and keeps the supervisor informed of progress in planning, coordinating, and implementing the work and resolving conflicts. Recommendations and decisions of the engineer are accepted as technically sound even though final approval may depend on formal action by high-level management. The engineer has the highest degree of independence in seeking optimum technical or policy solutions to problems in the light of current engineering developments. Completed work is broadly reviewed for adherence to mission or legislative direction and for assurance that broad policy or program objectives are fulfilled.

Factor 3- 5 Guidelines

Guidelines are basic legislation and/or broadly stated agency regulations and policy statements. At this level the engineer is a recognized technical authority in the interpretation of such broad guidelines, and must exercise considerable judgment and ingenuity in interpreting and adapting guides that exist; in developing new and improved hypotheses, concepts, or approaches not previously tested or reported; and/or in developing new policies that have the potential to take the organization (and the affected public) in new directions. The ideas, methods and procedures developed are on the cutting edge of technology and often serve as precedents for other scientists, engineers, or policy-makers within or outside the agency.

Factor 4- 5 Complexity

Assignments are of such breadth, diversity, and intensity that they involve many varied and complex features, and typically contain a combination of complex features that involve serious or difficult to resolve conflicts between engineering and management requirements. The work requires originating innovative scientific/engineering techniques, establishing criteria and

standards applicable to wide range of engineering problems and conditions, or developing new scientific concepts or approaches that advance the state-of-the-science.

Factor 5- 5 Scope and Effect

The work includes the resolution of a broad range of critical or highly unusual engineering problems, development of innovative approaches or guides, or the determination of the effectiveness and validity of proposed or current policies and programs. The engineer serves as an expert advisor and consultant to officials and managers within or outside the agency on a broad range of engineering activities and broad policy issues.

Factor 6- 3 Personal Contacts

Personal contacts include a wide range of professional and administrative personnel throughout the agency, at other federal agencies, in state and local government, private industry, academia, consumer advocacy groups, and in some cases the media and elected officials. The incumbent advises the highest levels of agency management on issues concerning the continuation or abandonment of objectives, goals, and programs. He/She serves as a contributing member of technical committees, professional task groups and special boards as assigned by the Project Manager. The incumbent also carries out LIAISON with other elements of GSFC, other NASA centers, other Government agencies, and industrial organizations in order to be cognizant of related efforts in his/her area of technological expertise.

Factor 7- 4 Purpose of Contacts

The purpose of contacts is to justify, defend, negotiate, or settle controversial and far-reaching matters through active participation in conferences, meetings or presentations. The persons contacted typically have diverse viewpoints, goals, or objectives, requiring the engineer to achieve a common understanding of the problem and a satisfactory solution by convincing others, arriving at a compromise, or developing suitable alternatives.

Factor 8- 1 Physical Demands

The work is primarily sedentary except for requisite field surveys and site inspections. Inspections may involve a considerable amount of physical activity including walking, climbing, bending, and stooping.

Factor 9- 1 Work Environment

Work is usually performed in an office setting, although there may be exposure to conditions in buildings or other structures under construction, renovation, or restoration.

Mission Manager, GS- 0801-15

AST- Technical Management, NCC: 770-30

Position Number: GS05C06

Introductory Statement: The incumbent serves as Mission Manager within the Flight Programs and Projects Directorate. The incumbent is responsible for effectively organizing, planning, directing, and coordinating the technical management operations of a mission. The incumbent is responsible for the leadership and development of all aspects of the program and serves as the primary point of contact between NASA, other U.S. Government agencies, and foreign participants. Incumbent has mission responsibility for program planning, evaluation, system engineering, equipment design, integration and test, scheduling, budget, user coordination, and interaction and overall mission objectives. The work includes advising on, coordinating, monitoring, or performing work in several phases of technical and resources planning and programming. The work may include designing, implementing, and maintaining technical management functions typically involving two or more areas of management functions such as resources analysis, technical management systems, technical engineering operations management, or configurations management; Duties may also include monitoring contractors engaged in this work.

The following major duty areas comprise tasks and duties directly related to AST-Technical Management work, NCC 770-30, as described in the AST Definition for that specialty level. The specialty knowledge described in the definition is needed to perform the duties of this job in addition to the knowledge described below.

Mission Operations Integration Work 40%

Manages the acquisition of systems, equipment, software and services for the mission. Conceives, initiates, and monitors policies, programs, and projects dealing with the most challenging problems in the area of integrated mission operations. Conceives, initiates, and monitors policies and projects dealing with the most challenging problems in the area of integrated mission operations. Participates in committees and working groups to set national standards and policies. Conceives, plans, and conducts pioneering work of outstanding scope, difficulty, and complexity in unexplored or unpromising areas of investigation. Provides the vision that forms the basis for strategic planning and development of functional requirements for operations facilities and tools to ensure the capabilities and resources meet the goals and objectives of the program/mission. Manages the assessment of operational interfaces inherent in advanced projects and in the proposals of the agency, program, and project elements and provides recommendations to Center management.

Manages the overall definition and performance of services for NASA's space operations including ensuring that mission control centers, space networks, and ground networks are capable of meeting mission requirements. Manages the policies for conceptual definition, design, development, implementation, integration, and test and verification of the agency's space operations infrastructure, control center, communications networks, and planning facilities to enhance technology compliance with industry strategies for future outsourcing and commercialization of space operations services.

Technical Contractor Oversight of Aerospace Engineering Activities 25%

Provides authoritative project decisions, programmatic advice, and consultation to contractors on variables and unknowns affecting planning, coordination, and critical aerospace engineering problems with respect to safety, costs, and project performance. Serves as Project authority to subordinate activities. Initiates investigations and studies to prove or disprove contractor's design criteria and to find solutions to critical problems in design, construction/production, or operation in areas such as fluid and flight mechanics, the fabrication or composition of materials and structures, or propulsion and power. Establishes validity criteria of studies to guide contract personnel specializing in various facets of the problems such as reviews and advises on flight systems studies. Performs additional data systems and analysis work.

Flight Systems Operations Work 20%

Directs overall development of mission design crew procedures, training, data acquisition requirements, and technical mission documentation for nominal and contingency spacecraft operations as Chief or Assistant Chief of a Branch or Division-level organization. Makes substantial and continuing contribution to long-range planning and to the formulation, modification, and determination of overall objectives. Serves as an authoritative source of information for decisions and guidance concerning changes in program objectives relating to the management of the total effort.

The systems include terrestrial and satellite data communications systems, and space and airborne remote sensing systems.

Participates in the management of development and certification of operations specialists for the organization. Coordinates with other offices within the project to establish content, cost, schedule of products, deliverables, and services. Interacts with senior management to formulate agreements and plans for institutional support of flight systems operations activities.

Performance of Technical Managerial Functions for Engineering Projects 10%

Provides authoritative technical decisions, advice, and consultation on variables and unknowns affecting planning, integration, coordination, and critical management problems with respect to safety, costs, and economics. Analyzes, coordinates, and integrates a number of complex program elements into programs that represent a Center-wide/program position. Serves as expert technical management consultant and advisor to subordinate activities in areas such as technology development and commercialization activities at a NASA center. Initiates investigations and risk-management studies to find solutions to critical problems in areas such as resources analysis, technical management systems, technical engineering operations management, or configurations management.

Serves as senior staff member of the Project, assisting the Project Manager in presenting operational problems, the solutions, status, and risk management status to Center and HQ management as well as to other non-NASA Agencies and educational institutions.

Develops, analyzes, and evaluates long-range plans for a Branch, Center, or program. Develops and implements policies. Oversees the development of trend analysis, process analyses, control policies, and requirements for a Center, or program. Directs surveillance and

audit activities. Consults on the development of technical resources and business management systems. Monitors the design and development of advanced technology for a NASA center. Initiates and facilitates technology transfer activities. Serves as the Center, program, and NASA representative. Incumbent has a far-reaching effect on the management of work and programs for extensive NASA engineering activities. Provides expert technical support to other government agencies as directed in matters concerning satellite-aided distress alerting and locating.

Space Flight Operations Work 5%

Serves as an expert consultant on the most challenging aspects of space flight operational activities. Manages and coordinates all activities required to support prelaunch and launch operations for an assigned mission. Coordinates operational and technical matters relative to assigned flow and participates in long-range planning on matters related to the assigned flow. Ensures that the proper ground processes are implemented from assembly through verification and launch, and ensures compatibility and coordination between the launch site support/processing organizations and the mission/flight hardware development organization.

Maintains close contact with headquarters, other centers, trade representatives, and international partners for elements in advanced technology and engineering application areas. Participates as a presenter in national and international seminars and symposia relating to fields of expertise in engineering technology or research.

OTHER SIGNIFICANT FACTS:

Position requires overnight travel 1-5 nights per month.

Assures technical proficiency and compliance with the technical provisions of the contract by reviewing and verifying the performance of work by the contractor.

Factor 1- 9 Knowledge Required by the Position

Mastery of a range of specialized areas in general engineering sufficient to originate concepts and effect new developments applicable to emerging functions of a national magnitude and with long-term purposes. Typically, this position is recognized as a national or international expert in a specialized area of general engineering.

Professional knowledge of, and ability to apply, engineering disciplines of spacecraft and instrument technology in the conduct of missions. Knowledge of, and ability to apply, engineering concepts, practices, principles, and discipline of data systems technology in development and operation of ground systems in support of space flight. Ability to communicate effectively orally and in writing. Ability to plan, organize, and manage the work to accomplish a variety of concurrent activities performed in a variety of organizations (in-house, contractors, NASA headquarters, investigators). Knowledge of management of a project including but not limited to project planning and evaluation, systems tests, configuration management, systems integration, risk management, reliability and quality assurance, image data processing, budgetary and financial planning, technical direction and monitoring of contracts, and project reporting. Knowledge of government and agency contractual and funding rules, regulations, relationships, and administrative processes involved in developing and procuring hardware, software, and an enormous and complicated ground systems and operations facility.

Factor 2- 5 Supervisory Controls

The supervisor provides guidance solely in the form of general legislative, mission, or policy directions and resource constraints. The engineer typically initiates new projects or activities independently and keeps the supervisor informed of progress in planning, coordinating, and implementing the work and resolving conflicts. Recommendations and decisions of the engineer are accepted as technically sound even though final approval may depend on formal action by high-level management. The engineer has the highest degree of independence in seeking optimum technical or policy solutions to problems in the light of current engineering developments. Completed work is broadly reviewed for adherence to mission or legislative direction and for assurance that broad policy or program objectives are fulfilled.

Factor 3- 5 Guidelines

Guidelines are basic legislation and/or broadly stated agency regulations and policy statements. At this level the engineer is a recognized technical authority in the interpretation of such broad guidelines, and must exercise considerable judgment and ingenuity in interpreting and adapting guides that exist; in developing new and improved hypotheses, concepts, or approaches not previously tested or reported; and/or in developing new policies that have the potential to take the organization (and the affected public) in new directions. The ideas, methods and procedures developed are on the cutting edge of technology and often serve as precedents for other scientists, engineers, or policy-makers within or outside the agency.

Factor 4- 6 Complexity

Work is characterized by broad and intensive efforts involving several kinds of problems where the controlling theory and practices are largely undefined, or where the engineering methods and practices are in a state of development or are extensively affected by advances in technology. Projects involve the full range of situations pertinent to various environments, requiring the development of new or refined methods and application of advanced technology. They may be of such scope and complexity that they require supportive projects, some of which are nonscientific in nature.

Factor 5- 6 Scope and Effect

The purpose of the work is to plan, develop, and execute major programs, projects, or activities for the agency, which are usually of national scope and significance. Engineers often serve as experts or consultants to top level managers within the organization or to a broad consortium of experts and special interest groups who are seeking critical evaluations on problems that require long-range solutions. Actions and recommendations affect broad agency policies, programs and legislative proposals, or have an equivalent effect on other scientifically oriented agencies and organizations on a continuing basis.

Factor 6- 4 Personal Contacts

Contacts are with high ranking officials from outside the agency at national levels in highly unstructured settings.

Factor 7- 4 Purpose of Contacts

The purpose of contacts is to justify, defend, negotiate, or settle controversial and far-reaching matters through active participation in conferences, meetings or presentations. The persons contacted typically have diverse viewpoints, goals, or objectives, requiring the engineer to achieve a common understanding of the problem and a satisfactory solution by convincing others, arriving at a compromise, or developing suitable alternatives.

Factor 8- 1 Physical Demands

The work is primarily sedentary except for requisite field surveys and site inspections.

Inspections may involve a considerable amount of physical activity including walking, climbing, bending, and stooping.

Factor 9- 1 Work Environment

Work is usually performed in an office setting, although there may be exposure to conditions in buildings or other structures under construction, renovation, or restoration.